

Comparisons of Job Characteristics

Focus Occupation: [Computer and Information Systems Managers \(11-3021\)](#)

Associated Occupation: [Computer Software Engineers, Applications \(15-1031\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 73

Focus Occupation: Computer and Information Systems Managers (11-3021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Computers and Electronics	8.4	23.8	20.0	<< Extensive education and/or training may be required
Mathematics	9.2	15.4	10.4	<< Extensive education and/or training may be required
Engineering and Technology	5.7	10.1	6.6	<< Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 41

Focus Occupation: Computer and Information Systems Managers (11-3021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Programming	2.2	14.6	6.9	<< Extensive development of skills in this area may be required
Complex Problem Solving	9.1	14.1	12.6	< A higher skill level may be required
Troubleshooting	4.5	13.5	7.5	<< Extensive development of skills in this area may be required
Systems Evaluation	6.4	13.4	12.2	0 Current skill level may be sufficient
Systems Analysis	6.5	13.3	10.8	< A higher skill level may be required
Mathematics	6.2	12.0	7.1	<< Extensive development of skills in this area may be required
Operations Analysis	5.0	11.4	9.6	< A higher skill level may be required
Technology Design	2.6	10.3	5.9	<< Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 93			
Focus Occupation: Computer and Information Systems Managers (11-3021) Associated Occupation: Computer Software Engineers, Applications (15-1031)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Deductive Reasoning	10.6	13.6	13.2	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	12.4	7.7	<<	Extensive improvement in abilities may be required
Fluency of Ideas	7.6	11.9	10.1	<	Some improvement in abilities may be required
Number Facility	6.3	11.2	7.5	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	11.1	10.2	0	Current ability level may be sufficient
Originality	7.6	10.8	10.1	0	Current ability level may be sufficient
Selective Attention	8.7	10.5	9.5	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.1	6.9	<	Some improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 88
Focus Occupation: Computer and Information Systems Managers (11-3021) Associated Occupation: Computer Software Engineers, Applications (15-1031)		
Work Activities	Exclusivity of Activity	
Consult with customers concerning needs	69	
Develop computer performance standards	87	
Evaluate computer system user requests or requirements	81	
Follow data security procedures	77	
Follow data storage procedures	75	
Recommend software or hardware purchases	85	
Revise or correct errors in computer programs, software, or systems	85	
Test computer programs or systems	78	
Use computer programming language	82	
Use project management techniques	47	

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 85

Focus Occupation: Computer and Information Systems Managers (11-3021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Electronic and communication measuring and testing instruments	14
Industry specific software	1
Network applications software	1
Networking software	21
Operating environment software	12
Security and protection software	30
Utility and device driver software	17

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.